Console
CCE Series

Console 50Hz - HFC-407C
Water-Source Heat Pumps

Installation, Operation & Maintenance

97B0035N02
Revised: 08/13/10

CLIMATEMASTER®
Water-Source Heat Pump Systems

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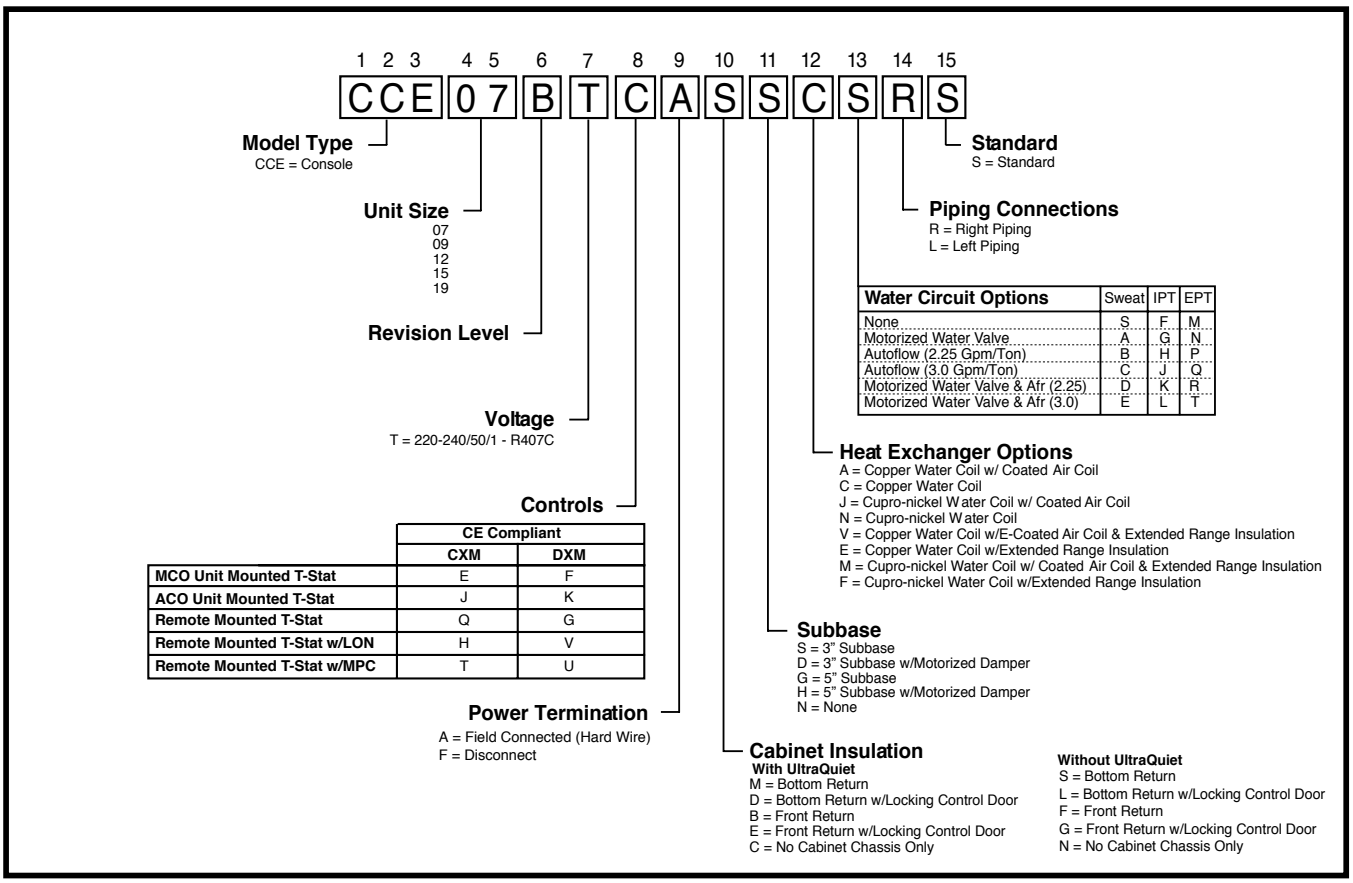
Model Decoder


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
CCE 07 B T C A S S C S R S
Model Type
CCE = Console
Unit Size
07
09
12
15
19
Revision Level
Voltage
T = 220-240/50/1 - R407C
Controls
Power Termination
A = Field Connected (Hard Wire)
F = Disconnect
Cabinet Insulation
With UltraQuiet
M = Bottom Return
D = Bottom Return w/Locking Control Door
B = Front Return
E = Front Return w/Locking Control Door
C = No Cabinet Chassis Only
Without UltraQuiet
S = Bottom Return
L = Bottom Return w/Locking Control Door
F = Front Return
G = Front Return w/Locking Control Door
N = No Cabinet Chassis Only
Subbase
S = 3" Subbase
D = 3" Subbase w/Motorized Damper
G = 5" Subbase
H = 5" Subbase w/Motorized Damper
N = None
Heat Exchanger Options
A = Copper Water Coil w/ Coated Air Coil
C = Copper Water Coil
J = Cupro-nickel Water Coil w/ Coated Air Coil
N = Cupro-nickel Water Coil
V = Copper Water Coil w/E-Coated Air Coil & Extended Range Insulation
E = Copper Water Coil w/Extended Range Insulation
M = Cupro-nickel Water Coil w/ Coated Air Coil & Extended Range Insulation
F = Cupro-nickel Water Coil w/Extended Range Insulation
Piping Connections
R = Right Piping
L = Left Piping
Standard
S = Standard

Water Circuit Options	Sweat	IPT	EPT
None	S	F	M
Motorized Water Valve	A	G	N
Autoflow (2.25 Gpm/Ton)	B	H	P
Autoflow (3.0 Gpm/Ton)	C	J	Q
Motorized Water Valve & Afr (2.25)	D	K	R
Motorized Water Valve & Afr (3.0)	E	L	T

	CE Compliant	
	CXM	DXM
MCO Unit Mounted T-Stat	E	F
ACO Unit Mounted T-Stat	J	K
Remote Mounted T-Stat	Q	G
Remote Mounted T-Stat w/LON	H	V
Remote Mounted T-Stat w/MPC	T	U

Consoles
Rev.: 08/13/10

General Information

Inspection
Upon receipt of shipment, carefully check the shipment against the bill of lading. Verify all CCE units have been received. Inspect each unit for damage. Be certain the carrier makes proper notation on the delivery receipt of all shortages and noticeable damage and he completes a Carrier Inspection Report. Concealed damage not discovered during unloading must be reported to the carrier within fifteen (15) days of receipt of shipment. NOTE: It is the responsibility of the purchaser to file all necessary claims with the carrier. Notify the ClimateMaster Traffic Department within fifteen (15) days of receipt of all damaged shipments.

Introduction
ClimateMaster Console Air Conditioner Water Source Heat Pump units are decentralized room terminals designed for field connection to a closed-circuit piping loop. They are offered in capacities ranging from 2-5.6 kW cooling.
Units must be installed indoors and are typically installed in perimeter zones, usually under windows. Supply air is discharged directly into the conditioned space through discharge grille located in the top of the unit.

Storage

CAUTION: DO NOT store or install CCE units in corrosive environments or in locations subject to temperature or humidity extremes (e.g., attics, garages, rooftops, etc.). Corrosive conditions and high temperature or humidity can significantly reduce performance, reliability, and service life. Always move units in an upright position. Tilting units on their sides may cause equipment damage.

Upon the arrival of the equipment at the job site, immediately store units in their shipping cartons in a clean, dry area. Store units in an upright position at all times. Stack units a maximum of 3 units high. Use pallets to separate each layer of units. Do not remove equipment from shipping cartons until equipment is required for installation.

Unit Protection
Cover CCE units on the job site with either shipping cartons, vinyl film, or an equivalent protective covering. Cap the open ends of pipes stored on the job site. In areas where painting, plastering, or the spraying of fireproof material has not been completed, all due precautions must be taken to avoid physical damage to the units and contamination by foreign material. Physical damage and contamination may prevent proper start-up and may result in costly equipment clean-up. Examine all pipes, fittings, and valves before installing the system components. Remove any dirt found on these components.

Pre-Installation
Installation, operation and maintenance instructions are provided with each unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Thoroughly check out the system before operation. Complete the inspections and instructions listed below to prepare a CCE unit for installation.

1. Compare the electrical data on the unit nameplate with ordering and shipping information to verify that the correct unit has been shipped.
2. Keep both the chassis and cabinet covered with the shipping carton until all plastering, painting, and finish work is complete and it is time to install the chassis and cabinet.
3. Verify that the refrigerant tubing is free of kinks or dents, and that it does not touch other unit components.
4. Inspect all electrical connections. Connections must be clean and tight at the terminals.

⚠ WARNING! ⚠

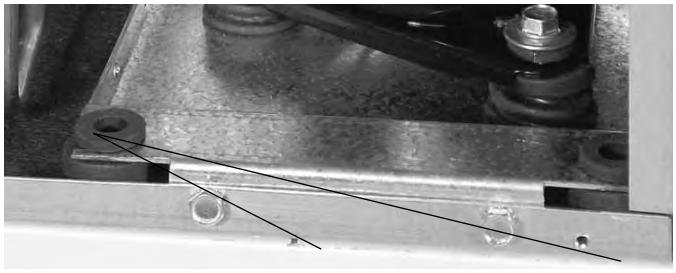
To avoid equipment damage, do not use these units as a source of heating or cooling during the construction process. The mechanical components and filters used in these units quickly becomes clogged with construction dirt and debris which may cause system damage.
To avoid the release of refrigerant into the atmosphere, the refrigerant circuit of this unit must only be serviced by technicians which meet local, state and federal proficiency requirements.
All refrigerant discharged from this unit must be recovered without exception. Technicians must follow industry accepted guidelines and all local, state and federal statutes for the recovery and disposal of refrigerants.
When a compressor is removed from this unit, system refrigerant circuit oil will remain in the compressor. To avoid leakage of compressor oil, the refrigerant lines of the compressor must be sealed after it is removed.

⚠ WARNING! ⚠

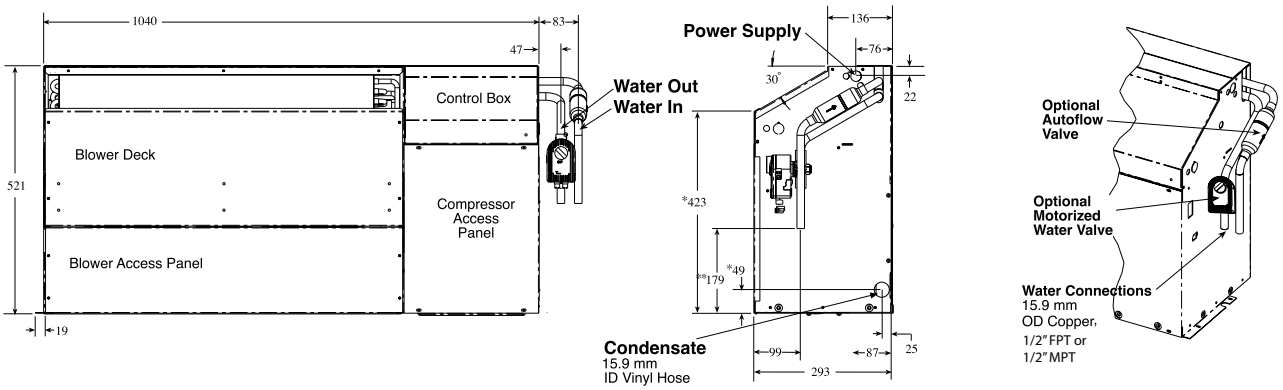
WARNING! The installation of water source heat pumps and all associated components, parts, and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes and regulations.

Chassis Dimensions

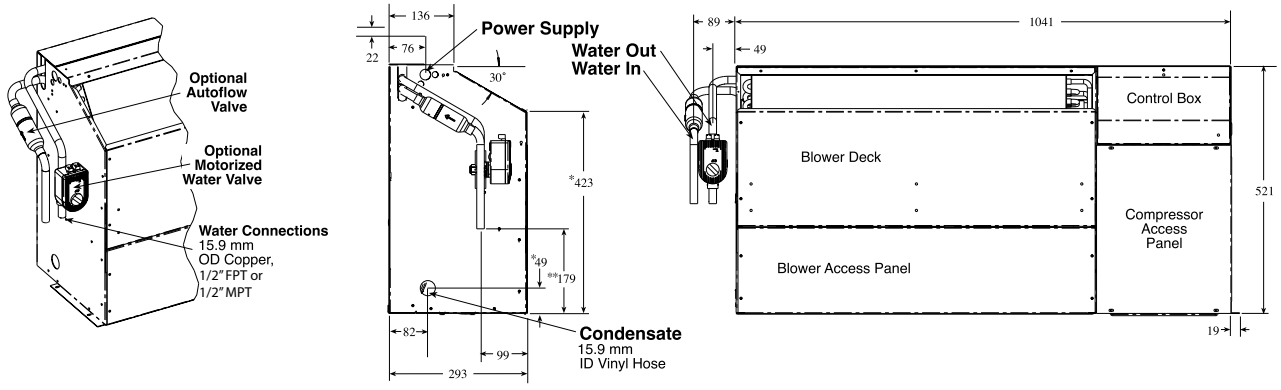
Figure 1a : Remove 4 shipping bolts on compressor isolation plate. (Not all models)



CHASSIS DIMENSIONS



Right Hand Configuration



Left Hand Configuration

Notes:
All dimensions are in mm.
*For installed dimension, add to dimension shown 74mm with 3" subbase and 124mm for 5" subbase.
**Dimension reduced by fitting if selected.

Installation

The installation of ConsoleWater Source Heat Pumps and all associated components, parts and accessories that make up the installation shall be in accordance with the regulations of ALL Authorities having jurisdiction and MUST conform to all applicable Codes. It is the responsibility of the Installing Contractor to determine and comply with ALL applicable Codes and Regulations.

NOTE: An Installation Checklist is provided in this manual. Complete this checklist after all installation procedures are completed. A periodic maintenance checklist provided in the Maintenance section outlines recommended maintenance schedules. A Start-Up Inspection Log is also included at the end of this manual to encourage thorough unit checkout at initial start-up. These checklists are not a substitute for the detailed information found in the Installation section of this manual.

1. CCE units are typically installed along an outside wall of the room. Provide adequate space in front of the unit for service and maintenance. Locate the Console Air Conditioner so that it provides adequate air circulation throughout the room.
2. Unpack the CCE Unit from the shipping carton. Remove the front cabinet by lifting up and away from the backplate. Protect the cabinet from damage during installation by returning it to its original vinyl pack until required.
3. Remove compressor isolation plate shipping screws (4) as shown in Figure 1a.
4. Using a carpenter's square and a level, ensure the unit is level. Shim the unit if necessary to assure proper installation.

CAUTION: Poor or inadequate installation may result in noisy unit operation or unattractive installation.

5. Select the proper fasteners to connect the backplate securely to the wall.
6. Fasten the backplate onto the wall through the screw holes located in the back flange. Secure the subbase in place.
7. Make all necessary electrical connections as described in the Electrical Wiring section of this manual. Consult the wiring diagram to ensure proper hook-up.
8. Connect the final piping as described in the Supply and Return Piping and Condensate Piping section of the manual. Install shut-off valves, piping and/or hoses and other accessories as specified.
9. Before making the final water connections, flush the system as described in the Start Up section of this manual. After flushing the system, connect piping and hoses to the proper supply, return and condensate connections of the unit.

NOTE: When necessary, use adapters to connect hoses.

10. Install any other system components as required following manufacturer's instructions.
11. After Start-up, reinstall the front cabinet by carefully lowering the front cabinet over the chassis onto the backplate.

Supply and Return Hoses

Optional pressure-rated hose assemblies are available for use with ClimateMaster CCE Units. Use the following guidelines when installing supply and return hose assemblies.

1. Install supply and return hoses fitted with swivel-joint fittings at one end to prevent the hose from twisting.
2. Use male adapters to secure the hose assembly to the unit and the riser.
3. Do not allow the hose to twist during installation. Twisting may damage the hose wall or the rubber compound. (Not all models)
4. Use pipe joint compound sparingly on the male pipe threads of the fitting adapters.
5. Prevent sealant from reaching the flared surfaces of the joint.
6. Do not use pipe joint compound when teflon thread tape is pre-applied to hose assemblies or when flared-end connections are used.
7. Maximum torque which may be applied to brass fittings is 30 ft-lbs. When a torque wrench is not used, tighten brass fittings finger-tight plus one quarter turn.
8. Tighten steel fittings as necessary.
9. Shut-off/balancing valves, flow indicators, and drain tees in the supply runout and return at each floor aid in loop balancing and servicing.
   CAUTION: Loop Fluids should be of good quality with no more than 0.50 ppm of chlorides w/ Cu (125 ppm w/ CuNi) to prevent corrosion and should also be filtered to a maximum 800 micron particle size to prevent erosion of the heat exchangers.

Supply and Return Piping

System piping MUST comply with all applicable codes.

1. Install a drain valve at the base of each supply and return riser to enable system flushing at start-up and during routine servicing.
2. Install shut-off/balancing valves and unions at each unit to allow unit removal for servicing.

NOTE: If flex hoses are used, unions are not necessary.

3. Install strainers at the inlet of each system circulating pump.

Installation

NOTE: If loop temperatures are expected below the ambient dew point, the optional internal insulation package must be ordered. Insulation must also be installed on loop water piping on those sections which run through unheated areas or are located outside the building.

Condensate Piping

Unit is supplied with condensate drain hose, 15.9mm I.D. flexible plastic nonpressure-rated, protruding from piping side of unit. Connect this hose to building drain. Avoid making kinks in hose to ensure an unobstructed flow of condensate from the unit to the drain. DO NOT twist, pull hose out, or push excess hose into unit. If hose will not connect to your building drain several options include, relocate end of building drain, add to or cut hose, use hard plastic or copper elbow fittings for tight radii (put inside hose). Keep hose positioned within or over subbase area so hose does not interfer with front cabinet. Cabinet should not push or reroute hose. Clamp all joints watertight. Check for leaks.

Internally the drain hose is clamped to drain pan and pitched correctly. Horizontal runs of condensate hose should be pitched downward 6mm (1/4 inch) minimum for every 300MM of hose. Avoid low points and unpitching because dirt collects in these areas and may cause blockage. If blocked the condensate level in drain pan increases, when level gets too high, CCE unit has sensor switch that will shut unit off, overflow may still occur.

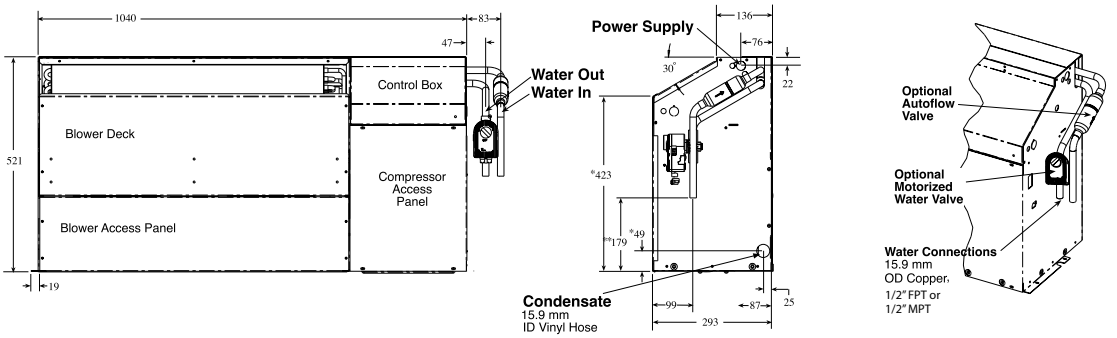
Building drain connection if parallel with floor the height can be up to 38mm above subbase for proper pitch and correct drainage, up to 130mm above is allowable but drainage will be slower. When 65 to 130mm above the hose inside unit will act as a trap. Heights more than 130mm above subbase are NOT allowable (condensate overflow may occur). Check if your unit has a disconnect box option, this limits building drain locations. See unit Configuration pages.

Field installation of a trap or vent is not required unless specified by local codes. CCE units are designed in a blow-through configuration. The condensate drain pan is located on the outlet side of the blower so that the pressure in the drain pan is higher than atmosphere.

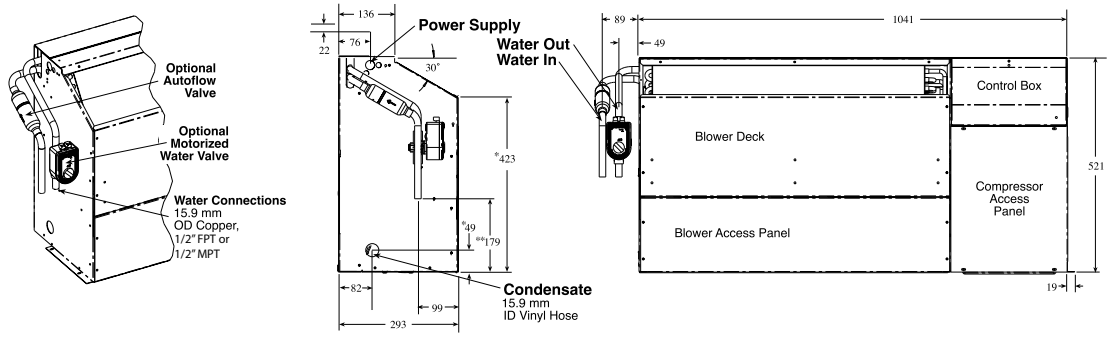
When drain connection is completed check for proper drainage and leaks. Correct if necessary.

If trap is used, check and clean often. See Maintenance Instructions.

Figure 1 Water Connection details



Right Hand Configuration



Left Hand Configuration

Notes:
All dimensions are in mm.
*For installed dimension, add to dimension shown 74mm with 3" subbase and 124mm for 5" subbase.
**Dimension reduced by fitting if selected

Electrical Wiring

⚠ WARNING! ⚠

To avoid possible injury or death due to electrical shock, open the power supply disconnect switch and secure it in an open position during installation.

CAUTION: Use only copper conductors for field installed electrical wiring. Unit terminals are not designed to accept other types of conductors.

All field installed wiring, including the electrical ground, MUST comply with the National Electrical Code as well as applicable local codes. In addition, all field low voltage wiring must conform to the Class II temperature limitations described in the NEC.

Consult the unit wiring diagram located on the inside of the compressor access panel to ensure proper electrical hookup. The installing (or electrical) contractor must make the field connections shown in Figure 1 when using field supplied disconnect.

Units have dual voltage (220-240V) control transformer. The units are shipped for 240V operation. Modify the transformer connection when the actual power supply is 220 volts. Refer to the unit wiring diagram for details of this procedure.

Make all final electrical connections with a length of flexible conduit to minimize vibration and sound transmission to the building.

Optional Wall-Mounted Thermostat
CCE WSHP units are built with standard internal thermostats in either manual changeover (MCO) or automatic changeover (ACO) configuration. No external, field-installed low-voltage wiring is required.

When desired, the unit can be furnished with a 24-volt control circuit which is field-wired to a ClimateMaster-supplied accessory remote thermostat.

Zone integrity must be maintained to efficiently control units or groups of units. Unless zones of control are considered and accounted for, adjacent units may operate in heating and cooling modes simultaneously.

Low-voltage wiring between the unit and the wall thermostat must comply with all applicable electrical codes (i.e., NEC and local codes), and be completed before the unit is installed.

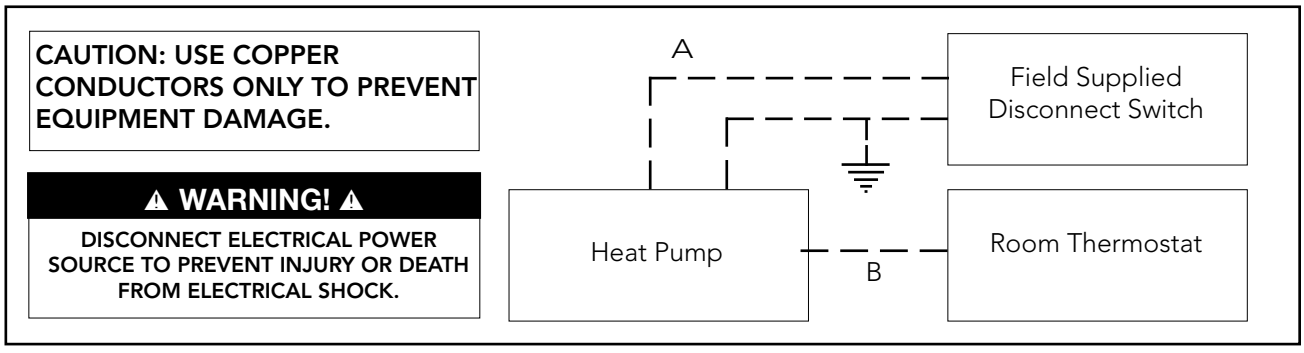
Table 2 lists recommended wire sizes and lengths to install the thermostat. The total resistance of low-voltage wiring must not exceed 1 ohm. Any resistance in excess of 1 ohm may cause the control to malfunction because of high voltage drop.

Table 2 - Recommended Thermostat Wire Sizes

WIRE SIZE	MAX. WIRE LENGTH*
18-Gauge	23 m
16-Gauge	38 m
14-Gauge	62 m

*Length = Physical distance from thermostat to unit.

Figure 1 Typical Field Installed Wiring


CAUTION: USE COPPER CONDUCTORS ONLY TO PREVENT EQUIPMENT DAMAGE.
⚠ WARNING! ⚠
DISCONNECT ELECTRICAL POWER SOURCE TO PREVENT INJURY OR DEATH FROM ELECTRICAL SHOCK.
A
Field Supplied Disconnect Switch
Heat Pump
B
Room Thermostat

A= Two power wires on single-phase units: three power wires on three-phase units. B= 1 heat /1 cool / manual or Auto Change-over remote 24V thermostat. Note: All customer-supplied wiring to be copper only and must conform to NEC and local electrical codes. Wiring shown with dashed lines must be field-supplied and field-installed. "B" only required with systems employing remote mounted thermostats.

Start-Up Preparation

System Cleaning and Flushing
Cleaning and flushing the unit and system is the single most important step to ensure proper start-up and continued efficient operation of the system. Follow the instructions below to properly clean and flush the system:
DO NOT FLUSH SYSTEM THROUGH THE UNIT!

⚠ WARNING! ⚠

To prevent injury or death due to electrical shock or contact with moving parts, open unit disconnect before servicing unit.

1. Verify that electrical power to the unit is disconnected and that the circulation pump is de-energized.
2. Connect the supply hose directly to the return riser valve. Use a single length of flexible hose as illustrated in Figure 2 below.

NOTE: When one hose is too short to make the connection without exceeding the minimum bend radius of the hose, substitute two length of flexible hose joined together with a field-supplied, standard MPT coupling. Use the adapter provided with the hose kit as shown in Figure 3.

3. Fill the system with water, leaving the air vents open. Bleed all air from the system but do not allow the system to over flow. Check the system for leaks and make any required repairs. Adjust the water and air level in the expansion tank.
4. With strainers in place, start the pumps. Systematically check each vent to ensure that all of the air is bled from the system.
5. Verify that make-up water is available and adjusted to properly replace any space remaining when all air is evacuated. Pressure test and inspect the system for leaks and make any additional repairs required.
6. Open the drain at the lowest point in the system. Verify that make-up water replacement rate equals rate of bleed. Continue to bleed the system until the water appears clean or for at least three hours whichever is longer.
7. Completely drain the system.
8. Refill the system with clean, chemically treated water. Since water varies for each locality, contact a local water treatment company for the correct cleaning chemicals to use in your area.

CAUTION: To avoid possible damage to piping systems constructed of plastic piping, DO NOT allow loop temperature to exceed 43 °C.

9. Set the boiler to raise the loop temperature to approximately 29.4°C. Circulate the solution for a minimum of 8 to 24 hours. At the end of this period, shut off the circulating pump and drain the solution. Repeat system cleaning if necessary.
10. When the cleaning process is complete, remove the short-circuit hoses. Connect the hoses to the proper supply and return connections to the unit. Refill the system and bleed off all air.
11. Test the system pH with litmus paper. The system water should be slight alkaline (pH 7.5 to 8.5). Add chemicals as appropriate to maintain acidity levels.

CAUTION: DO NOT use "Stop-Leak" or any similar chemical agent in this system. Addition of these chemicals to the loop water will foul the system and will inhibit unit operation.

12. When the system is successfully cleaned, flushed, refilled and bled, check the main system panels, safety cutouts and alarms. Set controls to properly maintain loop temperature.

Figure 2

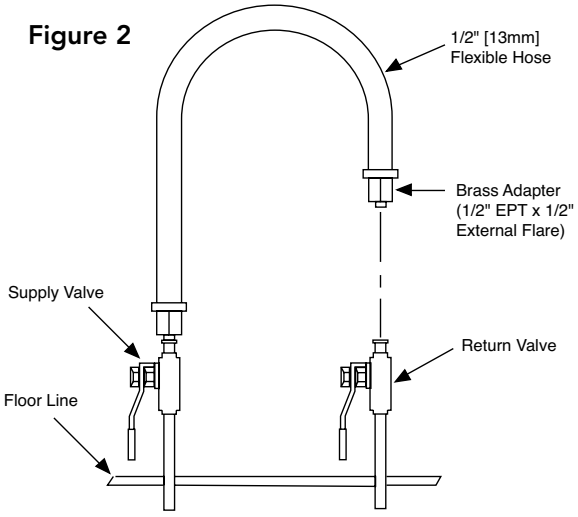
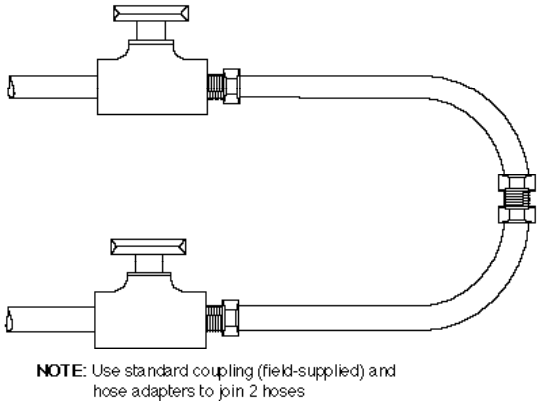


Figure 3



NOTE: Use standard coupling (field-supplied) and hose adapters to join 2 hoses

System Checkout

When the installation is complete and the system is cleaned and flushed, follow the System Checkout procedure outline below.

❑ 1. Voltage: Ensure voltage is within the utilization range specifications of the unit compressor and fan motor.

❑ 2. System Water Temperature: Ensure it is within an acceptable range to facilitate start-up. (When conducting this check, also verify proper heating and cooling set points.)

❑ 3. System Water pH: Verify system water acidity. (pH = 7.5 or 8.5) Proper pH promotes the longevity of hoses and heat exchangers.

❑ 4. System Flushing: Properly clean and flush system periodically. Ensure all supply and return hoses are connected end-to-end to facilitate system flushing and prevent fouling of the heat exchanger by system water. Water used in the system must be of potable quality and clean of dirt, piping slag, and chemical cleaning agents.

❑ 5. Closed-Type Cooling Tower or Open Tower with Heat Exchanger: Check equipment for proper temperature set points and operation.

❑ 6. Balanced Water Flow Rate to Heat Pump: Verify the inlet and outlet water temperatures are recorded as each heat pump unit is started. This check will eliminate nuisance unit trip-outs resulting from water velocities which are either too low or too high; it can also prevent the occurrence of erosive water flow rates.

❑ 7. Standby Pump: Verify the standby pump is properly installed and in operating condition.

❑ 8. System Controls: To ensure no catastrophic system failures occur, verify system controls are functioning and the sequencing is correct.

❑ 9. Freeze Protection for Water System: Verify freeze protection is provided for the outdoor portion of the loop water system. Inadequate freeze protection can lead to expensive tower and system piping repairs.

CAUTION: To avoid equipment damage, DO NOT leave system filled with water in a building without heat during the winter unless anti-freeze is added to system water. Coax coils never fully drain by themselves and will freeze unless winterized with anti-freeze.

❑ 10. System Water Loop: Verify all air is bled from the system. Air in the system impedes unit operation and causes corrosion in the system piping.

❑ 11. Unit Filters: To avoid unit damage and maximum performance, ensure the unit filter is clean.

❑ 12 Unit Fans: Manually rotate fans to assure free rotation. Ensure fans are properly secured to the fan shaft. Do not oil fan motors on start-up since they are lubricated at the factory.

❑ 13. System Control Center: To ensure control of the temperature set-points for operation of the system's heat rejector and boiler, examine the system control and alarm panel for proper installation and operation.

❑ 14. Miscellaneous: Note any questionable aspects of the installation.

Unit Start-Up

Use the procedure outlined below to initiate proper unit start-up:

NOTE: This equipment is designed for indoor installation ONLY.

⚠ WARNING! ⚠

When the disconnect switch is closed, high voltage is present in some areas of the electrical panel. Exercise caution when working with the energized equipment.

1. Adjust all valves to the full open position and turn on the line power to all heat pump units.
2. Operate each unit first in the cooling mode. Operate each heat pump in the heating cycle immediately after checking cooling cycle operation. A time delay will prevent the compressor from re-starting for approximately three minutes. Room temperature should be in the normal range (i.e., approximately 10-27°C DB. Loop water temperature entering the heat pumps should be at least 4°C but not in excess of 43°C. Refer to Table 3 for more specific information on the operating parameters of CCE units.

NOTE: Three factors determine the operating limits of a CCE unit: (1) return air temperature, (2) water temperature and (3) ambient temperature. Whenever any one of these factors is at a minimum or maximum level, the other two factors must be at normal levels to ensure proper unit operation. Flow rates must be at ARI rated standards.

3. If units do not operate correctly refer to the troubleshooting section (pg. 11). If unit cannot be repaired, record on form on last page of this manual and continue with start-up procedure.

Unit Start-up / Cooling

4. **High Cooling -**Turn the unit thermostat to the coolest position and turn the fan speed switch to "HI". If the unit has an optional MCO thermostat, set the selector switch to cool. Both the fan and compressor should run.
   Check for cool air delivery at unit grille 15 minutes after the unit is operating. List the identification number of any machines that do not function at this time.
   Check the elevation and cleanliness of the condensate lines; any dripping could be a sign of a blocked line.
5. **Low Cooling -** Disregard if your unit has only 1 fan speed. Select low fan. Airflow should decrease and compressor should operate.
6. Unit cycles off - Slowly turn thermostat toward warmer position. Both fan and compressor should shut off when thermostat set point equals room temperature. Note: room temperature must be below 32°C or unit will not cycle off.

Operating Limits

Environment: This equipment is designed for indoor installation ONLY.

Power Supply: A voltage variation of +/- 10% of nameplate utilization voltage is acceptable.

CCE Unit Starting Conditions: CCE Units start and operate in an ambient of 10°C with entering air at 10°C, entering water at 16°C and with both air and water at the flow rates used in the ARI Standard 13256-1 rating test for initial start-up in winter.

Table 3 Operating Limits

	CCE Units	
Air Limits	**Cooling**	**Heating**
Min. Ambient Air	10° C	10° C
Rated Ambient Air	27° C	19° C
Max. Ambient Air	38° C	30° C
Min. Entering Air	10° C	10° C
Rated Entering Air db/wb	27/19° C	20° C
Max. Entering Air db/wb	38/28° C	27° C
Water Limits		
Min. Entering Water	* -1° C	* -6° C
Normal Entering Water	30° C	21° C
Max. Entering Water	43° C	32° C

* Requires optional insulation package when operating below the dew point.

Note: Minimum air and water conditions can only be used at ARI flow rates. CCE Units may have up to two values at maximum or minimum with all other parameters at normal conditions.

NOTE: These operating limits are not normal for continuous operating conditions. It is assumed that such a start-up is for the purpose of bringing the building space to desired occupancy temperature.

Unit Start-Up / Heating

7. **High Heat** - Adjust the unit thermostat to the warmest setting and turn the fan speed switch to "HI". If the unit has an optional MCO thermostat, set the selector switch to heat. The blower should start immediately and after the time delay is complete the compressor will start. Once the unit has begun to run, check for warm air delivery at the unit grille. Again the installing contractor must list the serial number of any machine that does not function. Log the unit operating conditions at initial start-up for each unit to establish a permanent operating record.
8. **Low Heat -** Disregard if unit is only one speed. Select low fan. Airflow should decrease and compressor should continue to operate.
9. **Unit Cycles Off -** Slowly turn thermostat toward cooler position. Both fan and compressor should shut off when thermostat set point equals room temperature. Note room temperature must be above 19°C or unit will not cycle off.
10. **Fan Only -** Select fan speed. Only fan should operate.
11. **Off -** Unit should not operate

Troubleshooting

1. If the unit fails to operate, conduct the following checks:
   a. Check the voltage and current. They should comply with the electrical specifications described on the unit nameplate.
   b. Look for wiring errors. Check for loose terminal screws where wire connections have been made on both the line and low-voltage terminal boards.
   c. Check for dirty filters. A clogged filter will cause safety cutouts to stop unit operation.
   d. Check the supply and return piping. They must be properly connected to the inlet and outlet connections on the unit.
   e. If the fan fails to operate,check wiring and check to see that the fan wheel turns freely and that it is secured to the shaft. Also, determine whether the fan operates during both the heating and cooling modes.
   f. Check if circuit board is flashing a fault code. See CXM/DXM AOM for details.
   g. Check that the unit has not cycled off on thermostat.
   h. If the checks described above fail to reveal the problem and the unit still will not operate, contact a trained service technician to ensure proper diagnosis and repair of the equipment.

2. Record any unit that does not operate correctly. Use the form at the end of this manual.

Maintenance

Perform the maintenance procedures outlined below at the intervals indicated

⚠ WARNING! ⚠

To prevent injury or death due to electrical shock or contact with moving parts, open unit disconnect switch before servicing unit.

FILTERS: Inspect filters. Establish a regular maintenance schedule. Clean/replace filters frequently depending on need.
To remove the filter from the CCE unit, slide the filter out of its frame located in the return air opening at the bottom front of the unit. When re-installing the filter, use the slide-in rails of the filter frame to guide the filter into the proper position.

CAUTION: To avoid fouled machinery and extensive unit clean-up, DO NOT operate units without filters in place. DO NOT use equipment as a temporary heating or cooling source during construction.

CONDENSATE PANS: Check condensate drain pans for algae growth every three months. If algae growth is apparent, consult a water treatment specialist for proper chemical treatment. The application of an algaecide every three months will typically eliminate algae problems in most locations. Check condensate hose for leaks and blockage and correct any problems.
FAN MOTORS: All units have lubricated fan motors. FAN MOTORS SHOULD NEVER BE LUBRICATED UNLESS OBVIOUS, DRY OPERATION IS SUSPECTED. Periodic maintenance oiling is not recommended because it will result in dirt accumulating on excess oil and cause eventual motor failure. Conduct annual dry operation check and amperage check to ensure amp draw is no more than 10% greater than that indicated by serial plate data.
UNIT INSPECTION: Visually inspect the unit at least once a month. Pay special attention to hose assemblies. Repair any leaks and replace deteriorated hoses immediately. Note any signs of deterioration or cracking.
COMPRESSOR: Conduct an amperage check annually on the compressor and fan motor. Amperage draw should not exceed normal full load amps. Maintain a log of amperage to detect deterioration prior to component failure.

HEAT EXCHANGERS: Water Coil Maintenance – Generally water coil maintenance is not needed however, if the installation is located in a system with a known high dirt or debris content, it is best to establish with the owner a periodic maintenance schedule so the coil can be checked regularly. These dirty installations are a result of the deterioration of iron or galvanized piping or components in the system or open cooling towers requiring heavy chemical treatment and mineral buildup through water use. Should periodic coil cleaning be necessary, use standard coil cleaning procedures which are compatible with both the heat exchanger material and copper water lines. Generally, the more water flowing through the unit, the less chance for scaling, however flow rates over 0.0538 l/s per kW can produce water (or debris) velocities that can erode the heat exchanger wall and ultimately produce leaks.

Safety Control Reset
All ClimateMaster heat pumps are furnished with high-pressure, low-pressure and low-temperature cutouts to prevent the machine from operating at abnormal conditions of temperature or water flow.
The contacts of the high-pressure control used on CCE units is designed to open at 2600 kPa and automatically re-close at 2100 kPa. The CXM or DXM control monitors this and other functions such as refrigerant temperatures and pressures and condensate overflow and will interrupt unit heating or cooling operation.
The machine must be reset manually. Reset is accomplished by pressing the STOP button and then pushing either HI HEAT, LO HEAT, HI COOL or LO COOL to restart the unit in the desired mode of operation. (The CCE unit can also be reset by opening and closing the supply power disconnect switch.)

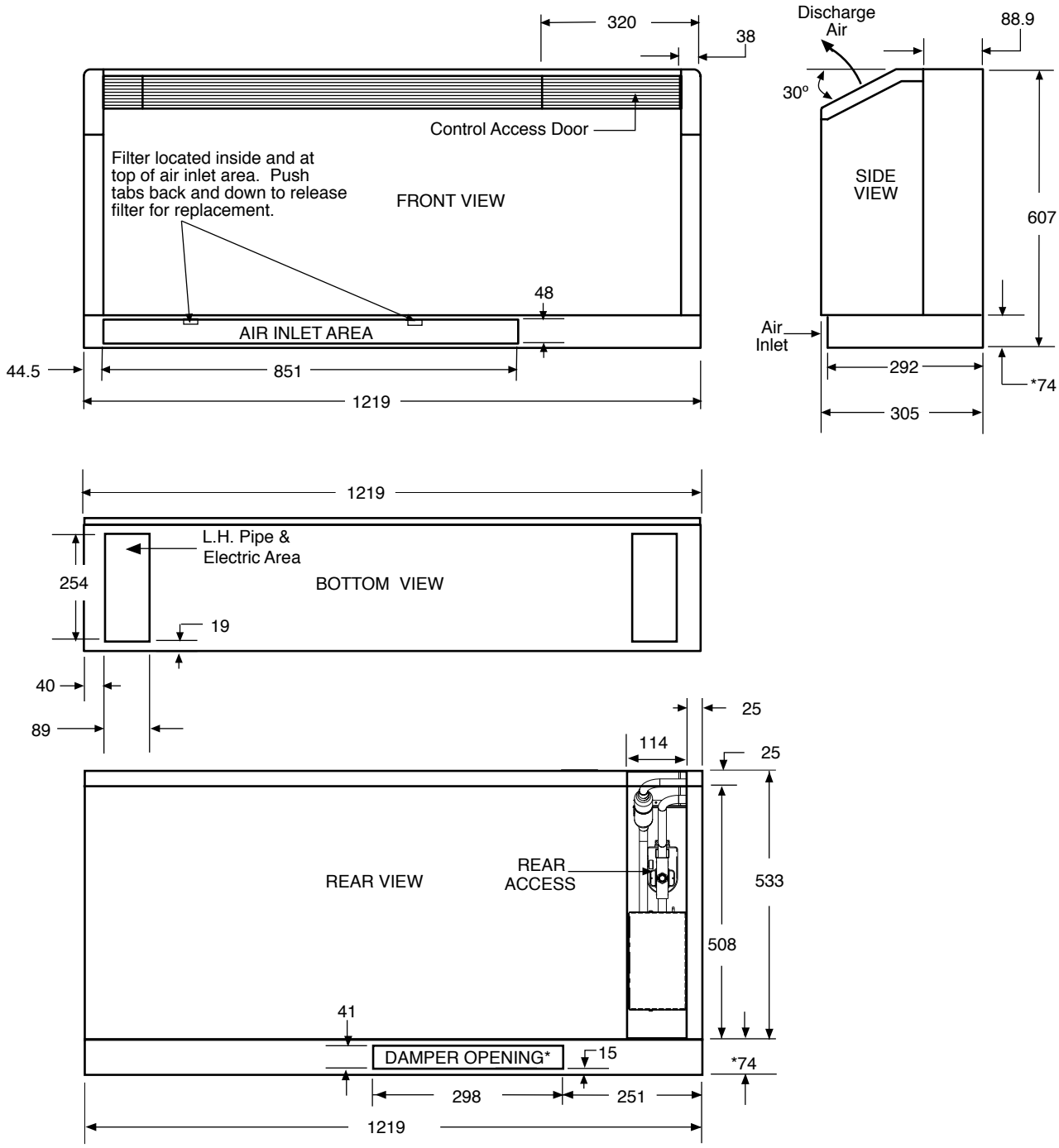
NOTE: If the unit must be reset more than twice, check the unit for a dirty filter, abnormal entering water temperature, inadequate or excessive water flow, and internal malfunctions. If the unit continues to cut out, contact a trained service technician.

⚠ WARNING! ⚠

When replacing the compressor contactor or lockout relay in a unit with electromechanical controls, use only ClimateMaster replacement parts. Substitution of other components may result in an inoperative safety circuit and may cause a hazardous condition.

Physical Dimensions

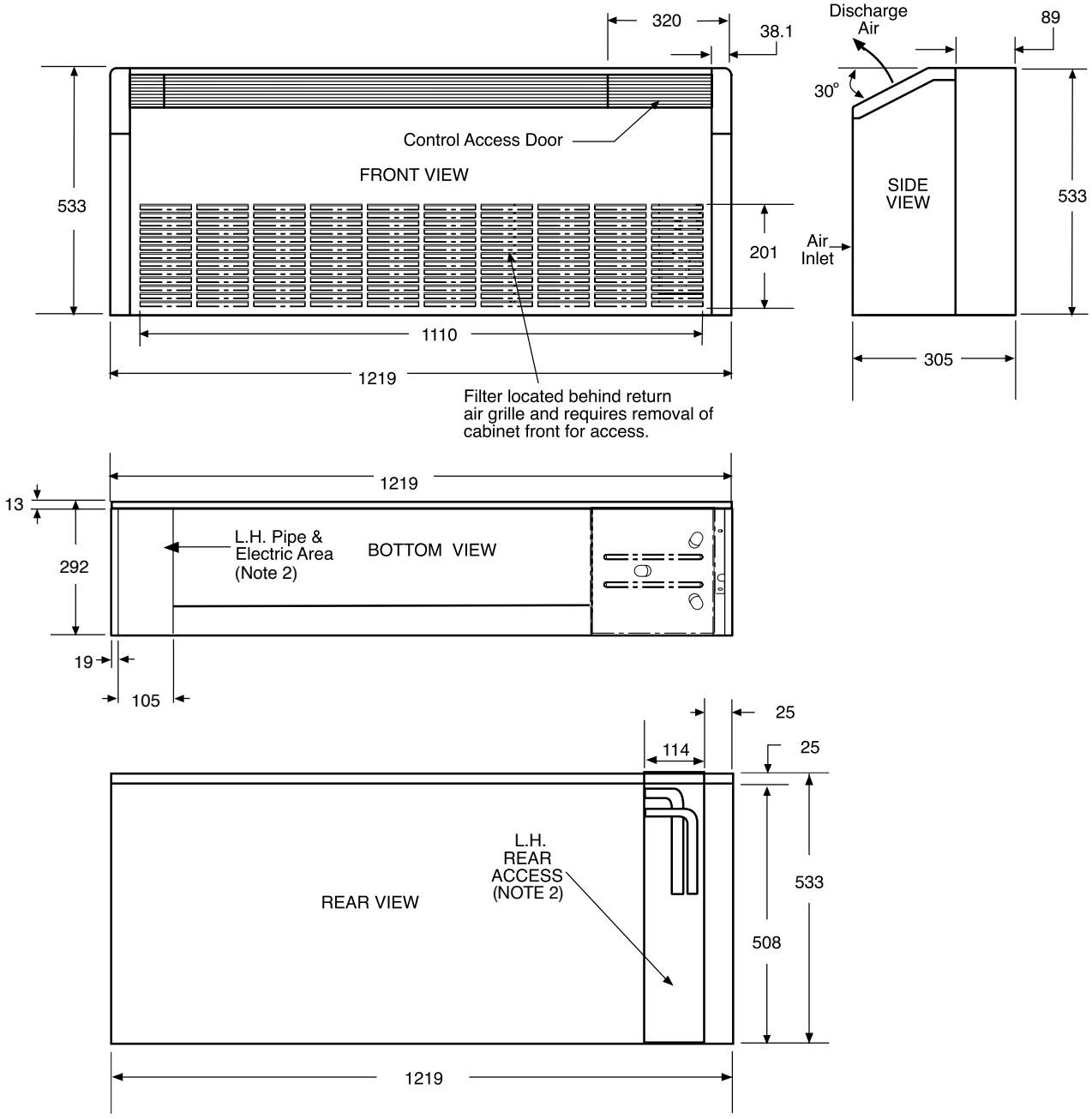
Left Hand Bottom Return



Notes:
All Dimensions are in mm
* Dimension with 76.2 mm subbase. Add 50.8 mm to dimension shown for 5" subbase .

Physical Dimensions

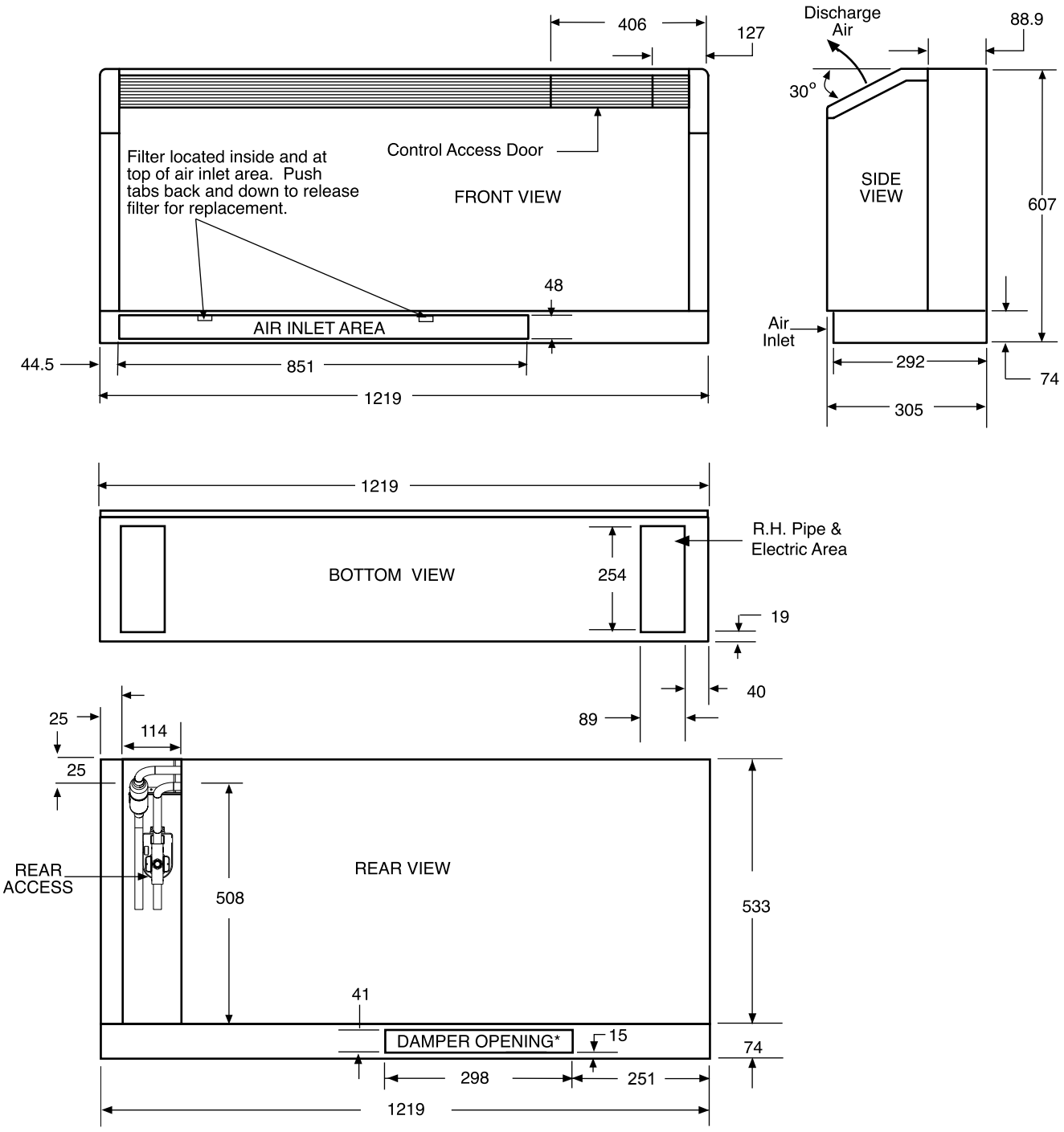
Left Hand Front Return



Notes:
1. All Dimensions are in millimeters.
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.

Physical Dimensions

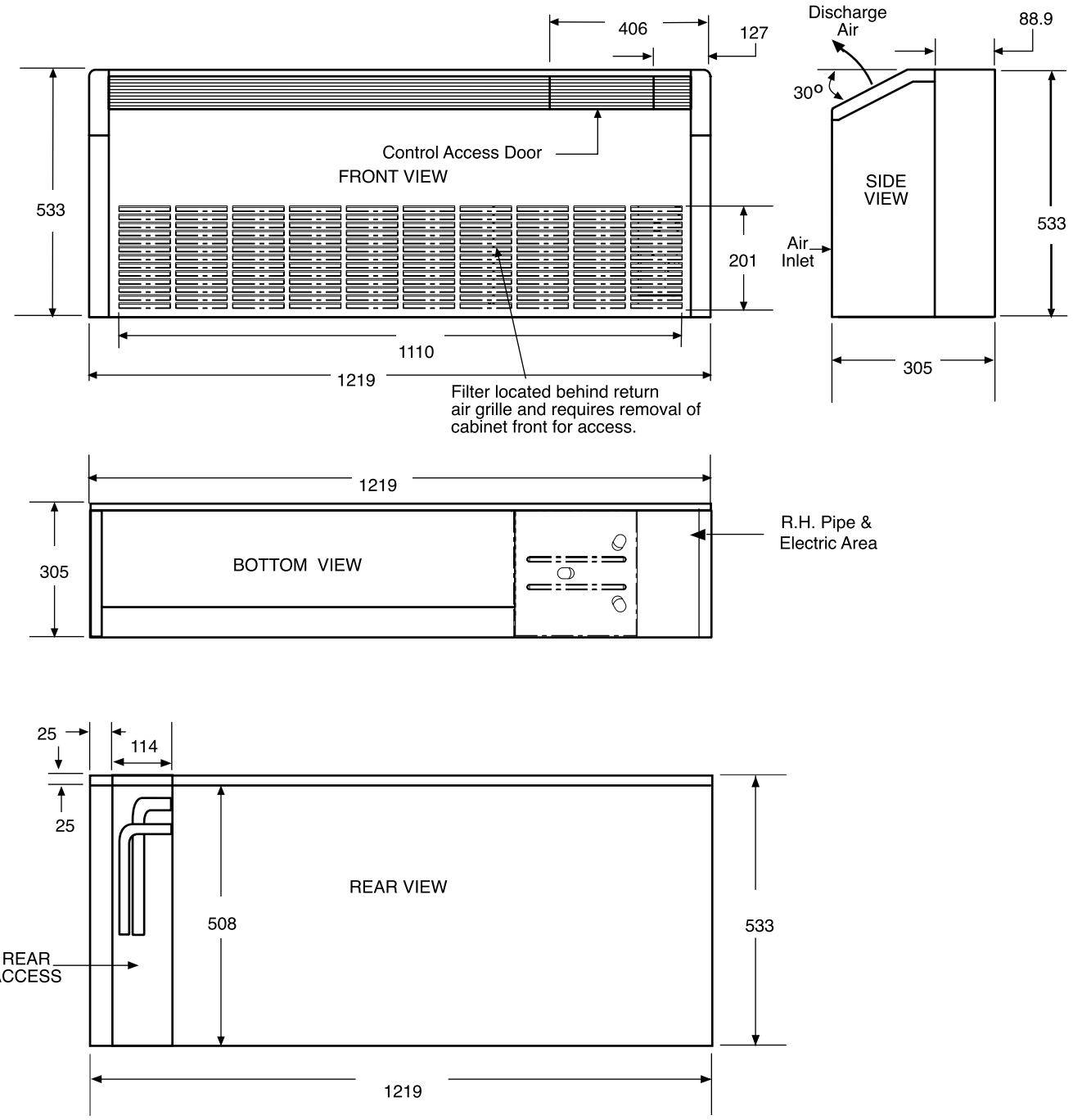
Right Hand Bottom Return



Notes:
All Dimensions are in mm.
* Dimension with 76.2 mm subbase. Add 50.8 mm to dimension shown for 5" subbase
Optional autoflow valve, motorized water valve are shown.

Physical Dimensions

Right Hand Front Return



Notes:
All Dimensions are in mm.
Optional autoflow valve, motorized water valve are shown.

Consoles
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Physical Data

Physical Data

Model	07	09	12	15	19
Compressor (1 each)	Rotary				
Factory Charge R407c - kg	0.340	0.369	0.510	0.567	0.539
PSC Fan Motor & Blower					
Fan Motor Type/Speeds	PSC/3				
Fan Motor W	37	50	50	124	124
Blower Wheel Size - Dia x W mm	133 x 159				
Water Connection Size					
O.D. Sweat mm	15.9				
Condensate Connection Size					
I.D. Vinyl Hose mm	15.9				
Air Coil Size					
Dimensions - H x W cm	20.3 x 66.0			25.4 x 66.0	
Filter Size					
Bottom Return cm	20.3 x 74.9 x 0.95				
Front Return cm	17.8 x 74.9 x 0.32				
Cabinet Size					
Bottom Return Std. W x H x D cm	121.9 x 61.0 x 30.5				
Bottom Return (12.7cm Base) W x H x D cm	121.9 x 66.0 x 30.5				
Front Return (No Base) W x H x D cm	121.9 x 53.3 x 30.5				
Unit Weight					
Packaged kg	71.7	73.5	78.0	80.7	83.0
Operating kg	68.0	69.9	74.4	77.1	79.4

Notes:

All units have rubber grommet compressor mountings and TXV expansion devices.

Electrical Data

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA				
07	**T**	220-240/50/1	198-264	5.0	3.2	14.0	0.35	3.6	4.4	15
09	**T**	220-240/50/1	198-264	5.8	3.7	17.2	0.50	4.2	5.1	15
12	**T**	220-240/50/1	198-264	6.6	4.2	21.3	0.50	4.7	5.8	15
15	**T**	220-240/50/1	198-264	8.0	5.1	28.0	1.00	6.1	7.4	15
19	**T**	220-240/50/1	198-264	9.2	5.9	34.0	1.00	6.9	8.4	15

HACR circuit breaker in USA only

Rev.: 10/14/03

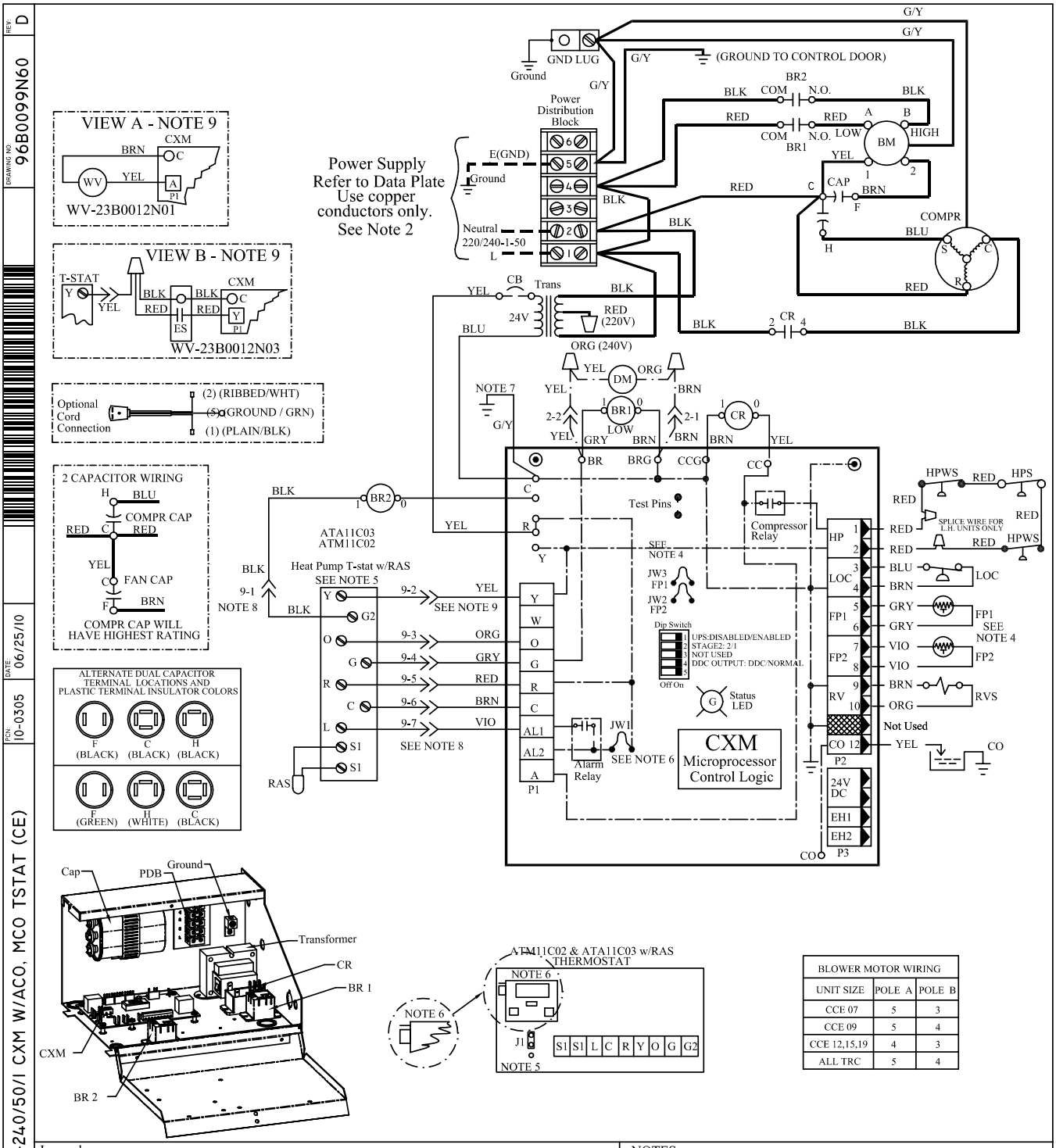
Wiring Diagram Matrix

All wiring diagrams can be located on the web at climatemaster.com

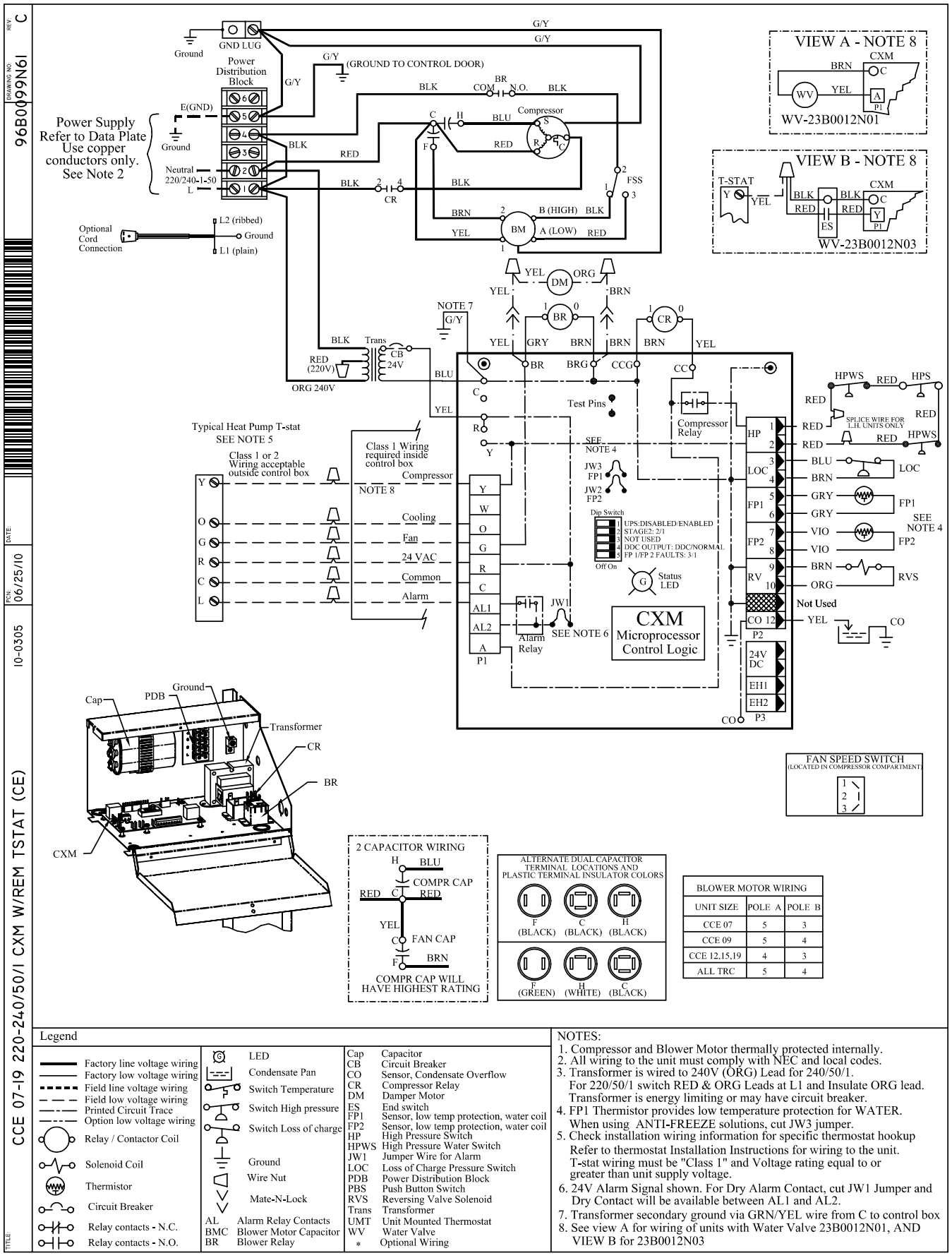
Model	Refrigerant	Wire Diagram Part Number	Electrical	Control	Agency
CCE07 - 19	R-407C	96B0099N60	220-240/50/1	CXM-ACO/MCO	CE
		96B0099N61		CXM-REM	
		96B0099N62		CXM-LON	
		96B0099N63		CXM-MPC	
		96B0100N60		DXM-ACO/MCO	
		96B0100N61		DXM-REM	
		96B0100N62		DXM-LON	
		96B0100N63		DXM-MPC	

Consoles
Rev.: 08/13/10

Typical Wiring Diagram - Manual and Auto Change Over With CXM Controller

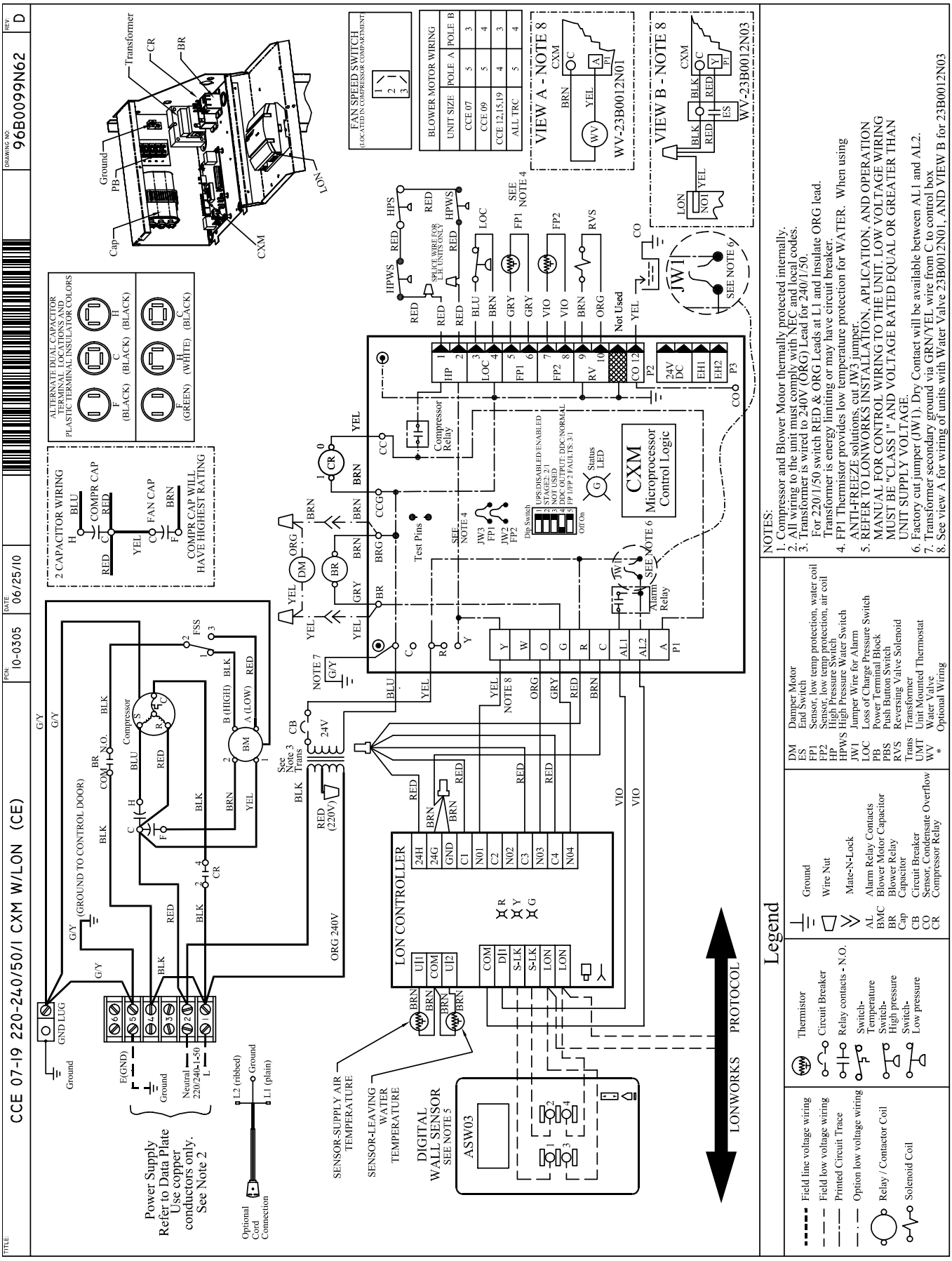


Typical Wiring Diagram - Remote Mounted Thermostat With CXM Controller

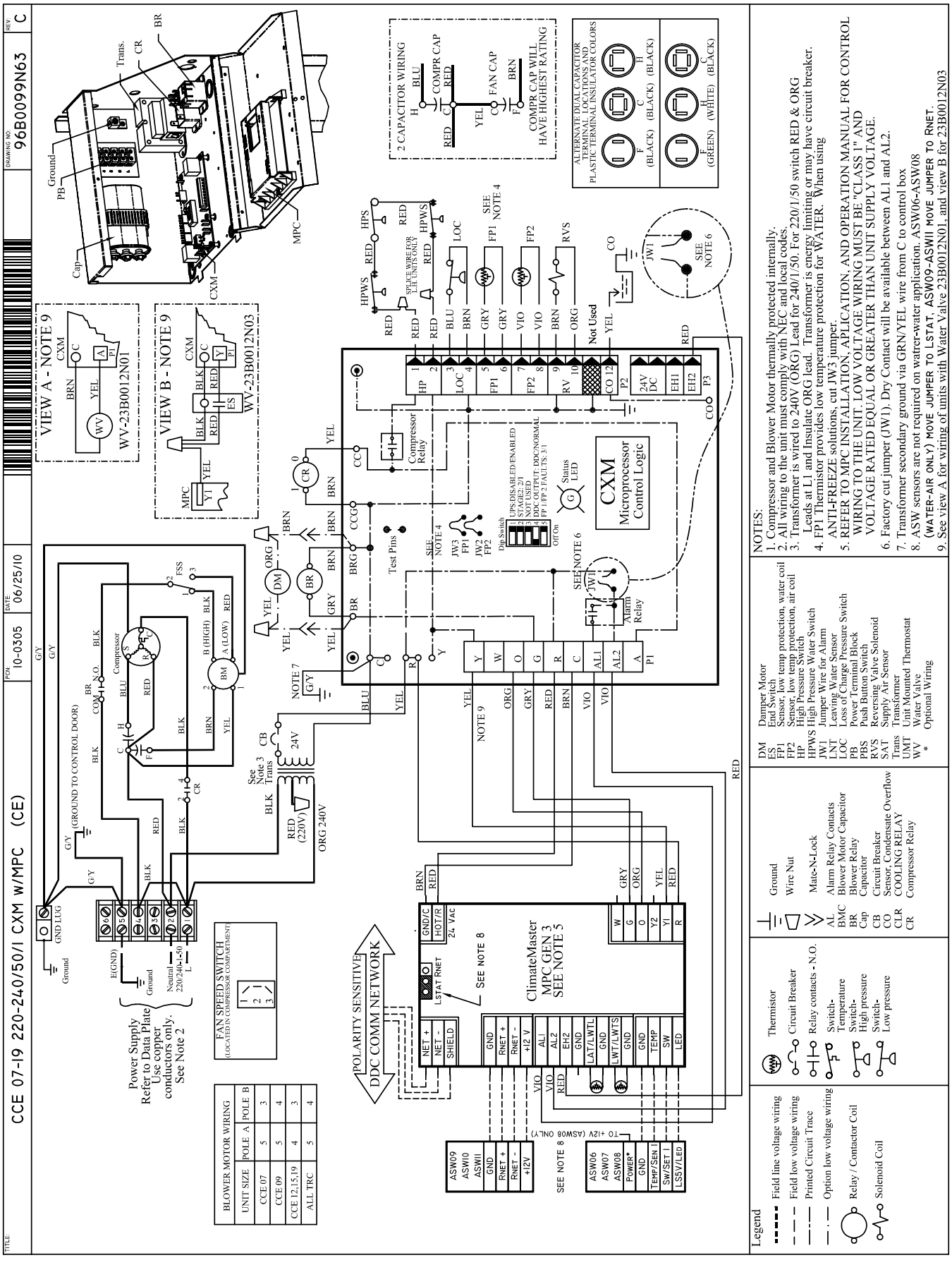


Consoles
Rev.: 08/13/10

Typical Wiring Diagram - CXM Controller with LON Controller

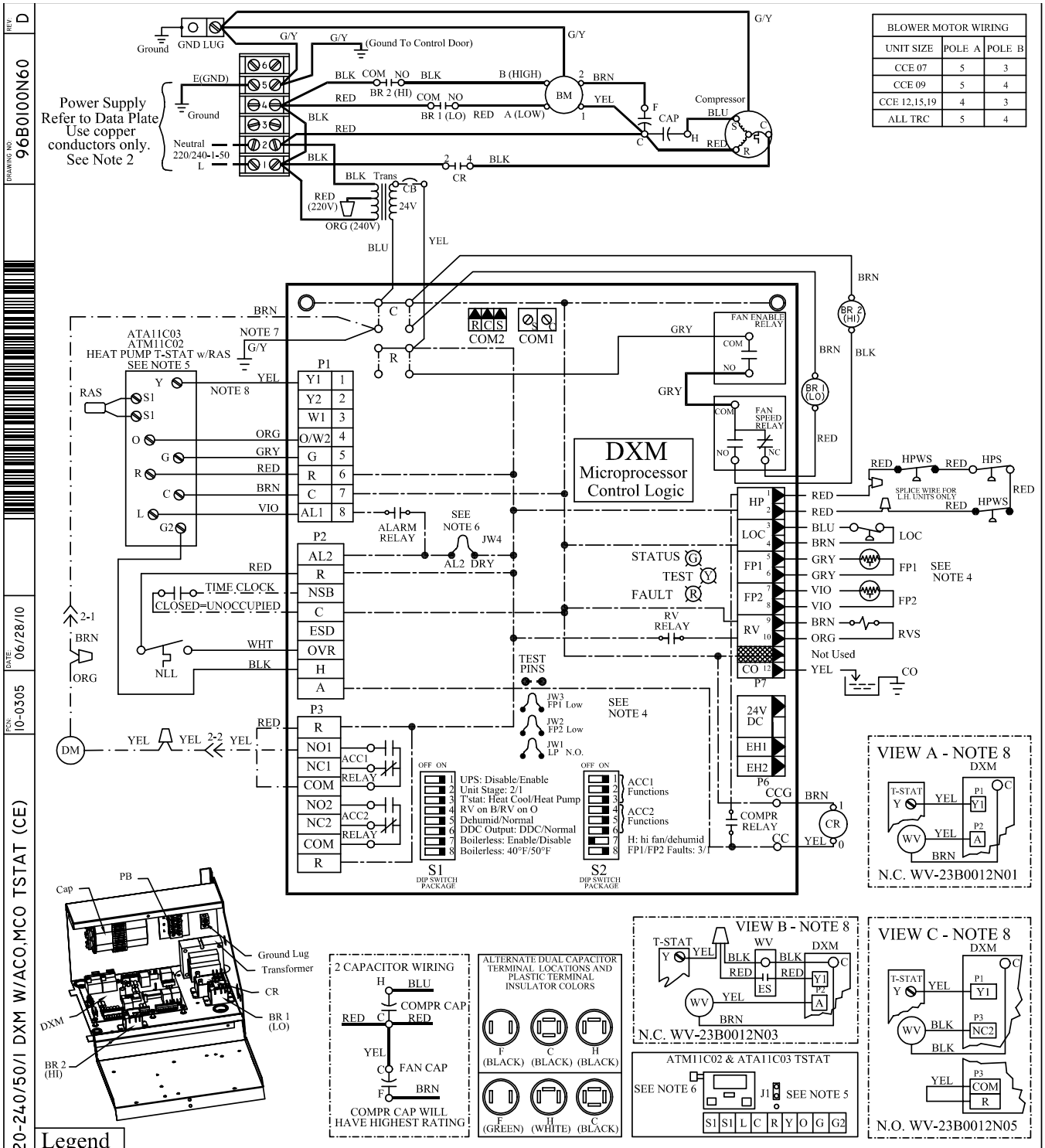


Typical Wiring Diagram - CXM Controller with MPC Controller


TITLE
CCE 07-19 220-240/50/1 CXM w/MPC (CE)
PDN 10-0305
DATE 06/25/10
DRAWING NO. 96B0099N63
REV. C
NOTES:
1. Compressor and Blower Motor thermally protected internally.
2. All wiring to the unit must comply with NEC and local codes.
3. Transformer is wired to 240V (ORG) Lead for 240/1/50. For 220/1/50 switch RED & ORG Leads at L1 and Insulate ORG lead. Transformer is energy limiting or may have circuit breaker.
4. FP1 Thermistor provides low temperature protection for WATER. When using ANTI-FREEZE solutions, cut JW3 jumper.
5. REFER TO MPC INSTALLATION, APLICATION, AND OPERATION MANUAL FOR CONTROL WIRING TO THE UNIT. LOW VOLTAGE WIRING MUST BE "CLASS 1" AND VOLTAGE RATED EQUAL OR GREATER THAN UNIT SUPPLY VOLTAGE.
6. Factory cut jumper (JW1). Dry Contact will be available between AL1 and AL2.
7. Transformer secondary ground via GRN/YEL wire from C to control box
8. ASW sensors are not required on watrer-water application. ASW06-ASW08 (WATER-AIR ONLY) MOVE JUMPER TO LSTAT, ASW09-ASWII MOVE JUMPER TO RNET.
9. See view A for wiring of units with Water Valve 23B0012N01, and view B for 23B0012N03
VIEW A - NOTE 9
VIEW B - NOTE 9
WV-23B0012N01
WV-23B0012N03
CXM
MPC
Ground
PB
Cap
Trans.
CR
BR
2 CAPACITOR WIRING
COMPR CAP
FAN CAP
COMPR CAP WILL HAVE HIGHEST RATING
ALTERNATE DUAL CAPACITOR TERMINAL LOCATIONS AND PLASTIC TERMINAL INSULATOR COLORS
(BLACK) (BLACK) (BLACK)
(GREEN) (WHITE) (BLACK)
GND LUG
Power Supply Refer to Data Plate Use copper conductors only. See Note 2
Neutral 220/240/1-50
FAN SPEED SWITCH
(LOCATED IN COMPRESSOR COMPARTMENT)
BLOWER MOTOR WIRING
UNIT SIZE | POLE A | POLE B
CCE 07 | 5 | 3
CCE 09 | 5 | 4
CCE 12,15,19 | 4 | 3
ALL TRC | 5 | 4
See Note 3 Trans
24V
RED (220V)
ORG 240V
NOTE 7
NOTE 9
POLARITY SENSITIVE
DDC COMM NETWORK
ClimateMaster
MPC GEN 3
SEE NOTE 5
SEE NOTE 8
LSTAT RNET
Compressor Relay
Alarm Relay
Status LED
Test Pins
Pin Switch
CXM
Microprocessor
Control Logic
SEE NOTE 4
SEE NOTE 6
SPLICE WIRE FOR LH UNITS ONLY
Not Used
TO +12V (ASW08 ONLY)
Legend
Field line voltage wiring
Field low voltage wiring
Printed Circuit Trace
Option low voltage wiring
Relay / Contactor Coil
Solenoid Coil
Thermistor
Circuit Breaker
Relay contacts - N.O.
Switch-Temperature
Switch-High pressure
Switch-Low pressure
Ground
Wire Nut
Mate-N-Lock
Alarm Relay Contacts
Blower Motor Capacitor
Blower Relay
Capacitor
Circuit Breaker
Sensor, Condensate Overflow
COOLING RELAY
Compressor Relay
Damper Motor
End Switch
Sensor, low temp protection, water coil
Sensor, low temp protection, air coil
High Pressure Switch
High Pressure Water Switch
Jumper Wire for Alarm
Leaving Water Sensor
Loss of Charge Pressure Switch
Power Terminal Block
Push Button Switch
Reversing Valve Solenoid
Supply Air Sensor
Transformer
Unit Mounted Thermostat
Water Valve
Optional Wiring

Consoles
Rev.: 08/13/10

Typical Wiring Diagram - Manual and Auto Change Over With DXM Controller



Functional Troubleshooting

Fault	Htg	Clg	Possible Cause	Solution
Main power Problems	X	X	Green Status LED Off	Check Line Voltage circuit breaker and disconnect
				Check for line voltage between L1 and L2 on the contactor
				Check for 24VAC between R and C on CXM/DXM
				Check primary/secondary voltage on transformer
HP Fault-Code 2 High pressure		X	Reduced or no water flow in cooling	Check pump operation or valve operation/setting
				Check water flow adjust to proper flow rate
		X	Water Temperature out of range in cooling	Bring water temp within design parameters
	X		Reduced or no Air flow in heating	Check for dirty air filter and clean or replace
				Check fan motor operation and airflow restrictions
				Dirty Air Coil- construction dust etc.
				Too high of external static. Check static vs blower table
	X		Air Temperature out of range in heating	Bring return air temp within design parameters
	X	X	Overcharged with refrigerant	Check superheat/subcooling vs typical operating condition table
	X	X	Bad HP Switch	Check switch continuity and operation. Replace
LP/LOC Fault-Code 3	X	X	Insufficient charge	Check for refrigerant leaks
Low Pressure/Loss of Charge	X		Compressor pump down at start-up	Check charge and start-up water flow
FP1 Fault - Code 4	X		Reduced or no water flow	Check pump operation or water valve operation/setting
Water Coil low temperature limit			in heating	Plugged strainer or filter. Clean or replace.
				Check water flow adjust to proper flow rate
	X		Inadequate anti-freeze level	Check antifreeze density with hydrometer
	X		Improper temperature limit setting (30°F vs 10°F [-1°C vs -12°C])	Clip JW3 jumper for antifreeze (10°F [-12°C]) use
	X		Water Temperature out of range	Bring water temp within design parameters
	X	X	Bad thermistor	Check temp and impedance correlation per chart
FP2 fault - Code 5		X	Reduced or no Air flow in cooling	Check for dirty air filter and clean or replace
Air Coil low temperature limit				Check fan motor operation and airflow restrictions
				Too high of external static. Check static vs blower table
		X	Air Temperature out of range	Too much cold vent air? Bring entering air temp within design parameters
		X	Improper temperature limit setting (30°F vs 10°F [-1°C vs -12°C])	Normal airside applications will require 30°F [-1°C] only
	X	X	Bad thermistor	Check temp and impedance correlation per chart
Condensate Fault-Code 6	X	X	Blocked Drain	Check for blockage and clean drain
	X	X	Improper trap	Check trap dimensions and location ahead of vent
		X	Poor Drainage	Check for piping slope away from unit
				Check slope of unit toward outlet
				Poor venting. Check vent location
		X	Moisture on sensor	Check for moisture shorting to air coil
	X	X	Plugged Air Filter	Replace Air Filter
	X	X	Restricted Return Air Flow	Find & eliminate restriction. Increase return duct and/or grille size.
Over/Under Voltage-Code 7 (Auto resetting)	X	X	Under Voltage	Check power supply and 24VAC voltage before and during operation.
				Check power supply wire size
				Check compressor starting. Need hard start kit?
				Check 24VAC and unit transformer tap for correct power supply voltage
	X	X	Over Voltage	Check power supply voltage and 24VAC before and during operation.
				Check 24VAC and unit transformer tap for correct power supply voltage
Unit Performance Sentinel-Code 8	X		Heating mode FP2>125°F [52°C]	Check for poor air flow or overcharged unit.
		X	Cooling Mode FP1>125°F [52°C] OR FP2< 40\F [4\C]	Check for poor water flow, or air flow
No Fault Code Shown	X	X	No compressor operation	See "Only fan operates"
	X	X	Compressor Overload	Check and Replace if necessary
	X	X	Control board	Reset power and check operation
Unit Short Cycles	X	X	Dirty Air Filter	Check and Clean air filter
	X	X	Unit in "Test Mode"	Reset power or wait 20 minutes for auto exit.
	X	X	Unit selection	Unit may be oversized for space. Check sizing for actual load of space.
	X	X	Compressor Overload	Check and Replace if necessary
Only Fan Runs	X	X	Thermostat position	Insure thermostat set for heating or cooling operation
	X	X	Unit locked out	Check for lockout codes. Reset power.
	X	X	Compressor Overload	Check compressor overload. Replace if necessary.
	X	X	Thermostat wiring	Check thermostat wiring at heat pump. Jumper Y and R for compressor operation in test mode.

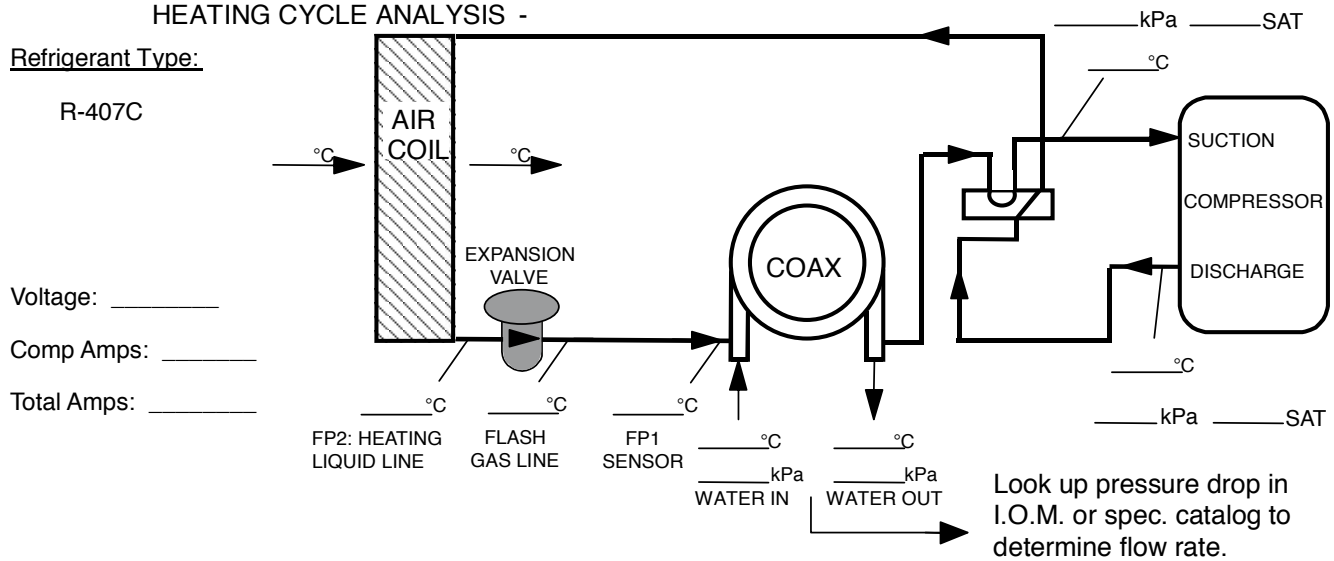
Functional Troubleshooting

Performance Troubleshooting	Htg	Clg	Possible Cause	Solution
Insufficient capacity/ Not cooling or heating properly	X	X	Dirty Filter	Replace or clean
	X		Reduced or no Air flow in heating	Check for dirty air filter and clean or replace
				Check fan motor operation and airflow restrictions
				Too high of external static. Check static vs blower table
		X	Reduced or no Air flow in cooling	Check for dirty air filter and clean or replace
				Check fan motor operation and airflow restrictions
				Too high of external static. Check static vs blower table
	X	X	Leaky duct work	Check supply and return air temperatures at the unit and at distant duct registers if significantly different, duct leaks are present
	X	X	Low refrigerant charge	Check superheat and subcooling per chart
	X	X	Restricted metering device	Check superheat and subcooling per chart. Replace.
		X	Defective Reversing Valve	Perform RV touch test
	X	X	Thermostat improperly located	Check location and for air drafts behind stat
	X	X	Unit undersized	Recheck loads & sizing check sensible clg load and heat pump capacity
	X	X	Scaling in water heat exchanger	Perform Scaling check and clean if necessary
	X	X	Inlet Water too Hot or Cold	Check load, loop sizing, loop backfill, ground moisture.
High Head Pressure	X		Reduced or no Air flow in heating	Check for dirty air filter and clean or replace
				Check fan motor operation and airflow restrictions
				Too high of external static. Check static vs blower table
		X	Reduced or no water flow in cooling	Check pump operation or valve operation/setting
				Check water flow adjust to proper flow rate
		X	Inlet Water too Hot	Check load, loop sizing, loop backfill, ground moisture.
	X		Air Temperature out of range in heating	Bring return air temp within design parameters
		X	Scaling in water heat exchanger	Perform Scaling check and clean if necessary
	X	X	Unit Overcharged	Check superheat and subcooling. Reweigh in charge
	X	X	Non-condensables insystem	Vacuum system and reweigh in charge
	X	X	Restricted metering device	Check superheat and subcooling per chart. Replace.
Low Suction Pressure	X		Reduced water flow in heating	Check pump operation or water valve operation/setting
				Plugged strainer or filter. Clean or replace.
				Check water flow adjust to proper flow rate
	X		Water Temperature out of range	Bring water temp within design parameters
		X	Reduced Air flow in cooling	Check for dirty air filter and clean or replace
				Check fan motor operation and airflow restrictions
				Too high of external static. Check static vs blower table
		X	Air Temperature out of range	Too much cold vent air? Bring entering air temp within design parameters
	X	X	Insufficient charge	Check for refrigerant leaks
Low discharge air temperature in heating	X		Too high of air flow	Check fan motor speed selection and airflow chart
	X		Poor Performance	See 'Insufficient Capacity'
High humidity		X	Too high of air flow	Check fan motor speed selection and airflow chart
		X	Unit oversized	Recheck loads & sizing check sensible clg load and heat pump capacity

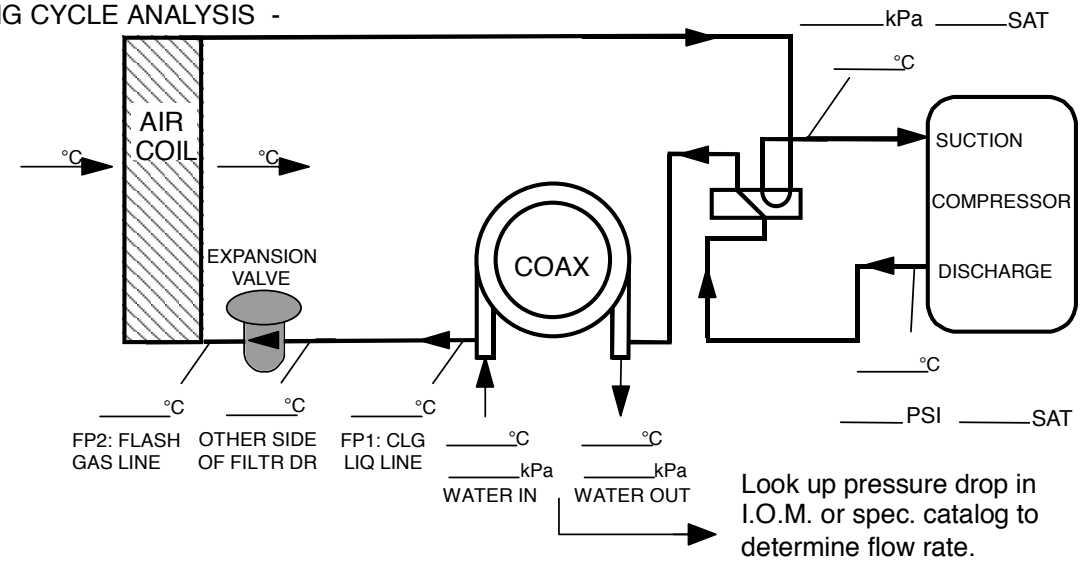
Troubleshooting Form

Model Number: _____
Serial Number: _____
Date: _____

HEATING CYCLE ANALYSIS -



COOLING CYCLE ANALYSIS -



Heat of Extraction (Absorption) or Heat of Rejection =

_____ flow rate (l/s) x _____ temp.diff. (deg. C) x _____ fluid factor† = _____ (W)

Superheat = Suction temperature - suction saturation temp. = _____ (deg C)

Subcooling = Discharge saturation temp. - liquid line temp. = _____ (deg C)

† Use 4.18 for water

Note: Never connect refrigerant gauges during startup procedures. Conduct water-side analysis using P/T ports to determine water flow and temperature difference. If water-side analysis shows poor performance, refrigerant troubleshooting may be required. Connect refrigerant gauges as a last resort.

CLIMATEMASTER
Geothermal Heat Pump Systems

CLIMATE MASTER, INC.
LIMITED EXPRESS WARRANTY /LIMITATION OF REMEDIES AND LIABILITY
(FOR INTERNATIONAL CLASS PRODUCTS)

Disclaimer: It is expressly understood that unless a statement is specifically identified as a warranty, statements made by Climate Master, Inc., a Delaware corporation, U. S. A. ("CM") or its representatives, relating to CM's products, whether oral, written or contained in any sales literature, catalog, this or any other agreement or other materials, are not express warranties and do not form a part of the basis of the bargain, but are merely CM's opinion or commendation of CM's products. **EXCEPT AS SPECIFICALLY SET FORTH HEREIN AND TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, CM MAKES NO WARRANTY AS TO ANY OF CM'S PRODUCTS, AND CM MAKES NO WARRANTY AGAINST LATENT DEFECTS OR ANY WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.**

GRANT OF LIMITED EXPRESS WARRANTY

CM warrants CM products purchased and installed outside the United States of America ("U.S.A.") and Canada to be free from material defects in materials and workmanship under normal use and maintenance as follows: (1) All complete air conditioning, heating or heat pump units built or sold by CM for twelve (12) months from date of unit start-up or eighteen (18) months from date of shipment (from CM's factory), whichever comes first; and, (2) Repair and replacement parts, which are not supplied under warranty, for ninety (90) days from date of shipment (from factory).

Warranty parts shall be furnished by CM if ordered through an authorized sales representative of CM ("Representative") within sixty (60) days after the failure of the part. If CM determines that a parts order qualifies for replacement under CM's warranty, such parts shall be shipped freight prepaid to the Representative or the ultimate user, as requested by Representative. All duties, taxes and other fees shall be paid by the ultimate user through the Representative.

If requested by CM, all defective parts shall be returned to CM's factory in Oklahoma City, Oklahoma, U.S.A, freight and duty prepaid, not later than sixty (60) days after the date of the request. If the defective part is not timely returned or if CM determines the part to not be defective or otherwise not to qualify under CM's Limited Express Warranty, CM shall invoice Customer the costs for the parts furnished, including freight. The warranty on any part repaired or replaced under warranty expires at the end of the original warranty period.

This warranty does not cover and does not apply to: (1) Air filters, fuses, refrigerant, fluids, oil; (2) Products relocated after initial installation; (3) Any portion or component of any system that is not supplied by CM, regardless of the cause of the failure of such portion or component; (4) Products on which the unit identification tags or labels have been removed or defaced; (5) Products on which payment by Customer to CM or its distributors or Representatives, or the Customer's seller is in default; (6) Products which have defects or damage which result from improper installation, wiring, electrical imbalance characteristics or maintenance; or from parts or components manufactured by others; or are caused by accident, misuse, negligence, abuse, fire, flood, lightning, alteration or misapplication of the product; (7) Products which have defects or damage which result from a contaminated or corrosive air or liquid supply, operation at abnormal temperatures or flow rates, or unauthorized opening of the refrigerant circuit; (8) Mold, fungus or bacteria damages; (9) Products subjected to corrosion or abrasion; (10) Products, parts or components manufactured or supplied by others; (11) Products which have been subjected to misuse, negligence or accidents; (12) Products which have been operated in a manner contrary to CM's printed instructions; (13) Products which have defects, damage or insufficient performance as a result of insufficient or incorrect system design or the improper application, installation, or use of CM's products; or (14) Electricity or fuel costs, or any increases or unrealized savings in same, for any reason.

CM is not responsible for: (1) The cost of any fluids, refrigerant or other system components, or the associated labor to repair or replace the same, which is incurred as a result of a defective part covered by CM's Limited Express Warranty; (2) The cost of labor, refrigerant, materials or service incurred in diagnosis and removal of the defective part, or in obtaining and replacing the new or repaired part; (3) Transportation costs of the defective part from the installation site to CM or of the return of any part not covered by CM's Limited Express Warranty; or (4) The costs of normal maintenance.

Limitation: This Limited Express Warranty is given in lieu of all other warranties. If, notwithstanding the disclaimers contained herein, it is determined by a court or other qualified judicial body that other warranties exist, any such warranty, including without limitation any express warranty or any implied warranty of fitness for particular purpose and merchantability, shall be limited to the duration of the Limited Express Warranty. This Limited Express Warranty does not exclude any warranty that is mandatory and that may not be excluded under applicable imperative law.

LIMITATION OF REMEDIES

In the event of a breach of this Limited Express Warranty or any warranty that is mandatory under applicable imperative law, CM will only be obligated at CM's option to either repair the failed part or unit or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to CM's factory in Oklahoma City, Oklahoma, U.S.A. of each defect, malfunction or other failure and a reasonable number of attempts by CM to correct the defect, malfunction or other failure and the remedy fails of its essential purpose, CM shall refund the purchase price paid to CM in exchange for the return of the sold good(s). Said refund shall be the maximum liability of CM. **TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE CUSTOMER AGAINST CM FOR BREACH OF CONTRACT, FOR THE BREACH OF ANY WARRANTY OR FOR CM'S NEGLIGENCE OR IN STRICT LIABILITY.**

LIMITATION OF LIABILITY

CM shall have no liability for any damages if CM's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, allocation, shortages of transportation, fuel, materials, or labor, acts of God or any other reason beyond the sole control of CM. **TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW AND SUBJECT TO THE NEXT SENTENCE, CM EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR LOSS OF PROFITS, LOSS OF BUSINESS OR GOODWILL, CONSEQUENTIAL, INCIDENTAL, SPECIAL, LIQUIDATED, OR PUNITIVE DAMAGE IN CONTRACT, FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR CM's NEGLIGENCE OR AS STRICT LIABILITY.** Nothing in this Agreement is intended to exclude CM's liability for death, personal injury or fraud.

OBTAINING WARRANTY PERFORMANCE

Normally, the contractor or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any CM recognized Representative. If assistance is required in obtaining warranty performance, write or call:

Climate Master, Inc. • Customer Service • 7300 S.W. 44th Street • Oklahoma City, Oklahoma, U.S.A. 73179 • (405) 745-6000 • FAX (405) 745-6068

NOTE: Some countries do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.

Please refer to the CM Installation, Operation and Maintenance Manual for operating and maintenance instructions.

Rev.: 10/09

LC079

Start-Up Log

Installer: Complete unit and system checkout and follow unit start-up procedures in the IOM. Use this form to record unit information, temperatures and pressures during start-up. Keep this form for future reference.
Job Name: _____ **Street Address:** _____
Model Number: _____ **Serial Number:** _____
Unit Location in Building: _____
Date: _____ **Sales Order No:** _____

In order to minimize troubleshooting and costly system failures, complete the following checks and data entries before the system is put into full operation.

Temperatures: C **Antifreeze: _____%**
Pressures: kPa **Type** _____

	Cooling Mode		Heating Mode	
Entering Fluid Temperature				
Leaving Fluid Temperature				
Temperature Differential				
Return-Air Temperature	DB	WB	DB	WB
Supply-Air Temperature	DB	WB	DB	WB
Temperature Differential				
Water Coil Heat Exchanger (Water Pressure IN)				
Water Coil Heat Exchanger (Water Pressure OUT)				
Pressure Differential				
Compressor				
Amps				
Volts				
Discharge Line Temperature				
Motor				
Amps				
Volts				

Allow unit to run 15 minutes in each mode before taking data.

Do not connect gage lines

Consoles
Rev.: 08/13/10

Revision History

Date:	Item:	Action:
08/13/10	Entire Document	Removed All I-P Measurements
06/30/10	Format - All Pages	Updated
06/30/10	CCE (R22) Units	Removed
09/09/04	Tables	Updated
01/01/03	First Published	

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CLIMATEMASTER
Water-Source Heat Pump Systems

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ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time for order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products.

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